

PNP BCY70 – BCY71 – BCY72

SILICON PLANAR EPITAXIAL TRANSISTORS

The BCY70 - BCY79 – BCY72 are PNP transistors mounted in TO-18 metal.
 General purpose industrial applications.
 Low current and low voltage.
 Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	BCY70	-40	V
		BCY71	-45	
		BCY72	-25	
V_{CEB}	Collector-Emitter Voltage ($I_E = 0$)	BCY70	-50	V
		BCY71	-45	
		BCY72	-25	
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	-5	V	
I_C	Collector Current	-200	mA	
I_{CM}	Peak Collector Current	-200	mA	
I_{BM}	Peak Base Current	-100	mA	
P_D	Total Power Dissipation	@ $T_{amb} = 25^\circ\text{C}$	390	mW
T_J	<i>Junction Temperature</i>	200	$^\circ\text{C}$	
T_{Stg}	Storage Temperature range	-65 to +150	$^\circ\text{C}$	
T_{amb}	Operating ambient Temperature	-65 to +150	$^\circ\text{C}$	

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance Junction-ambient	500	$^\circ\text{C}/\text{W}$
R_{thJ-c}	Thermal Resistance, Junction-case	150	$^\circ\text{C}/\text{W}$

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ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit		
I_{CES}	Collector Cutoff Current	V _{CB} = -20 V, V _{BE} = 0 V	BCY70	-	-	-10	nA	
			BCY71	-	-	-100		
			BCY72	-	-	-100		
I_{CES}	Collector Cutoff Current	V _{CB} = -50 V V _{BE} = 0 V, T _j = 150 °C	BCY70	-	-	-0.5	μA	
		V _{CB} = -45 V V _{BE} = 0 V, T _j = 150 °C	BCY71	-	-	-10		
		V _{CB} = -25 V V _{BE} = 0 V, T _j = 150 °C	BCY72	-	-	-10		
I_{EBO}	Emitter Cutoff Current	V _{BE} = -5.0 V, I _C = 0	BCY70	-	-	-500	nA	
			BCY71					
			BCY72					
V_{CE(SAT)}	Collector-Emitter saturation Voltage	I _C = -10 mA, I _B = -1 mA	BCY70	-	-	-0.25	V	
			BCY71					
			BCY72					
		I _C = -50 mA, I _B = -5 mA	BCY70	-	-	-0.5		
			BCY71					
			BCY72					
V_{BE(SAT)}	Base-Emitter Saturation Voltage	I _C = -10 mA, I _B = -1 mA	BCY70	-0.6	-	-0.9	V	
			BCY71					
			BCY72					
		I _C = -50 mA, I _B = -5 mA	BCY70	-	-	-1.2		
			BCY71					
			BCY78					
		BCY70		BCY71		BCY72		Unit
		Min	Max	Min	Max	Min	Max	
h_{FE}	DC Current Gain	I _C = -0.1 mA V _{CE} = -1 V	40	-	80	-	-	-
		I _C = -1 mA V _{CE} = -1 V	45	-	90		40	
		I _C = -10 mA V _{CE} = -1 V	50	-	100	600	50	
		I _C = -50 mA V _{CE} = -1 V	15	-	15	-	-	

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ELECTRICAL CHARACTERISTICS

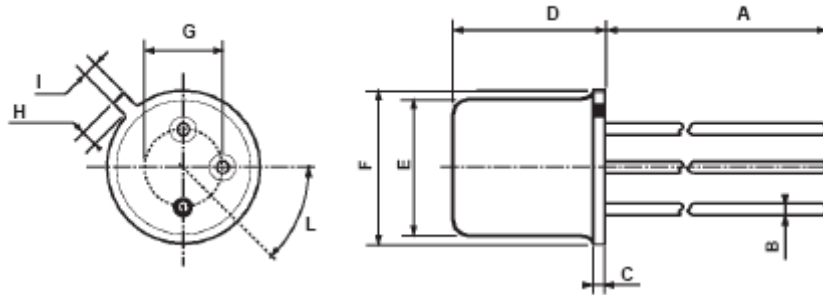
T_j=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
h_{fe}	Small-Signal Current Gain	I _C = -1 mA, V _{CE} = -10 V f = 1kHz	BCY71 only	100	-	400	-
f_T	Transition frequency	I _C = -0.1 mA, V _{CE} = -20 V f = 10.7 MHz	BCY71	15	-	-	MHz
		I _C = -10 mA, V _{CE} = -20 V f = 100 MHz	BCY70	250	-	-	
			BCY71 BCY72	200	-	-	
NF	Noise Figure	I _C = -0.1 mA, V _{CE} = -5 V f = 10 to 10 kHz R _g = 2 kΩ	BCY71	-	-	2	dB
			BCY70	-	-	6	
			BCY72	-	-	6	
t_d	Delay time	I _{Con} = -10 mA I _{Bon} = -I _{Boff} = -1mA V _{EE} = 3 V	BCY70	-	-	35	ns
t_r	Rise time		BCY70	-	-	35	
			BCY72	-	-	35	
t_s	Storage time		BCY70	-	-	350	
			BCY72	-	-	350	
t_f	Fall time		BCY70	-	-	80	
			BCY72	-	-	80	
t_{on}	Turn on time		BCY70	-	-	65	
			BCY72	-	-	65	
t_{off}	Turn off time		BCY70	-	-	420	
		BCY72	-	-	420		
C_C	Collector-Base capacitance	I _E = 0, V _{CB} = -10 V f = 1MHz	BCY70	-	-	8	pF
			BCY71	-	-	8	
			BCY72	-	-	8	
C_E	Emitter-Base capacitance	I _C = 0, V _{EB} = -1 V f = 1MHz	BCY70	-	-	8	pF
			BCY71	-	-	8	
			BCY72	-	-	8	

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MECHANICAL DATA CASE TO-18 (PNP)

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-



Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector

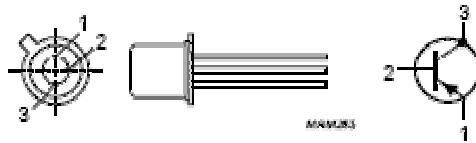


Fig. 1 Simplified outline (TO-18) and symbol.

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